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(71)Applicant : **MITSUBISHI ELECTRIC CORP**

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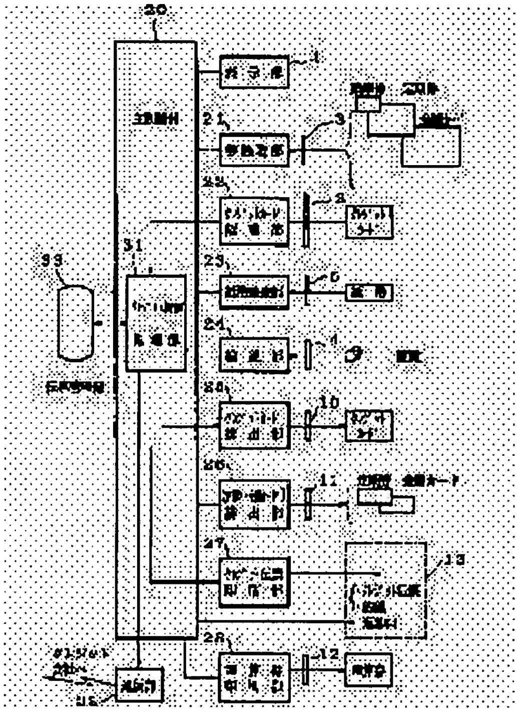
(54) AUTOMATIC FARE ADJUSTER FOR ADJUSTING EXCESS FARE OF TRAIN TICKET OR THE LIKE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an automatic fare adjuster with which an excess fare can be smoothly paid and the burden of a user in money is not accompanied by providing a credit fare adjusting means for adjusting the excess fare with a credit card.

SOLUTION: Information described on a train ticket, etc., put into a train ticket slot 3 is transmitted through a ticket reading part 21 to a main control part 20 and at the main control part 20, the excess fare is calculated. The calculated excess fare is displayed on a display part 1. The user inserts the credit card into a credit card inserting port 2. A credit slip is prepared, sent to a slip managing part 33 and preserved. Then, the credit slip is printed at a credit slip printing part 27 and issued from a change return port 13 as a slip for user duplicate. The credit card is returned from a credit card return port 10, and a fare adjustment ticket is issued from a fare adjustment ticket issue port 12.



LEGAL STATUS

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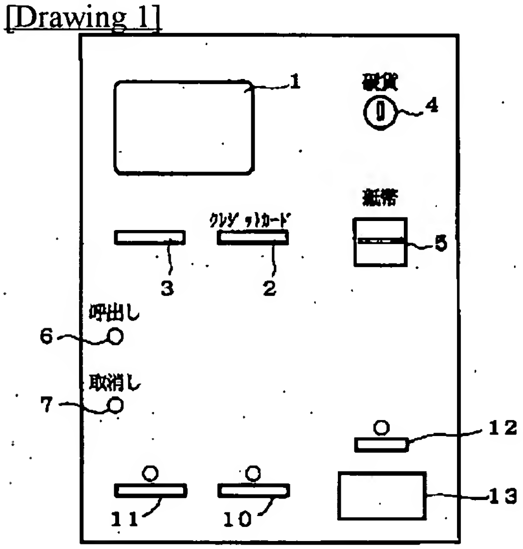
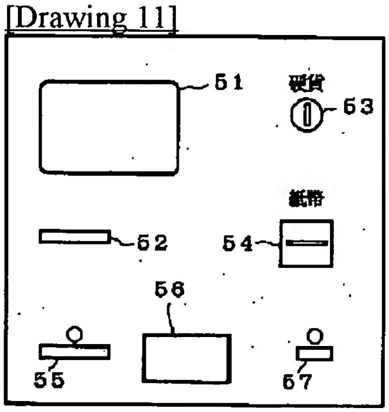
DRAWINGS

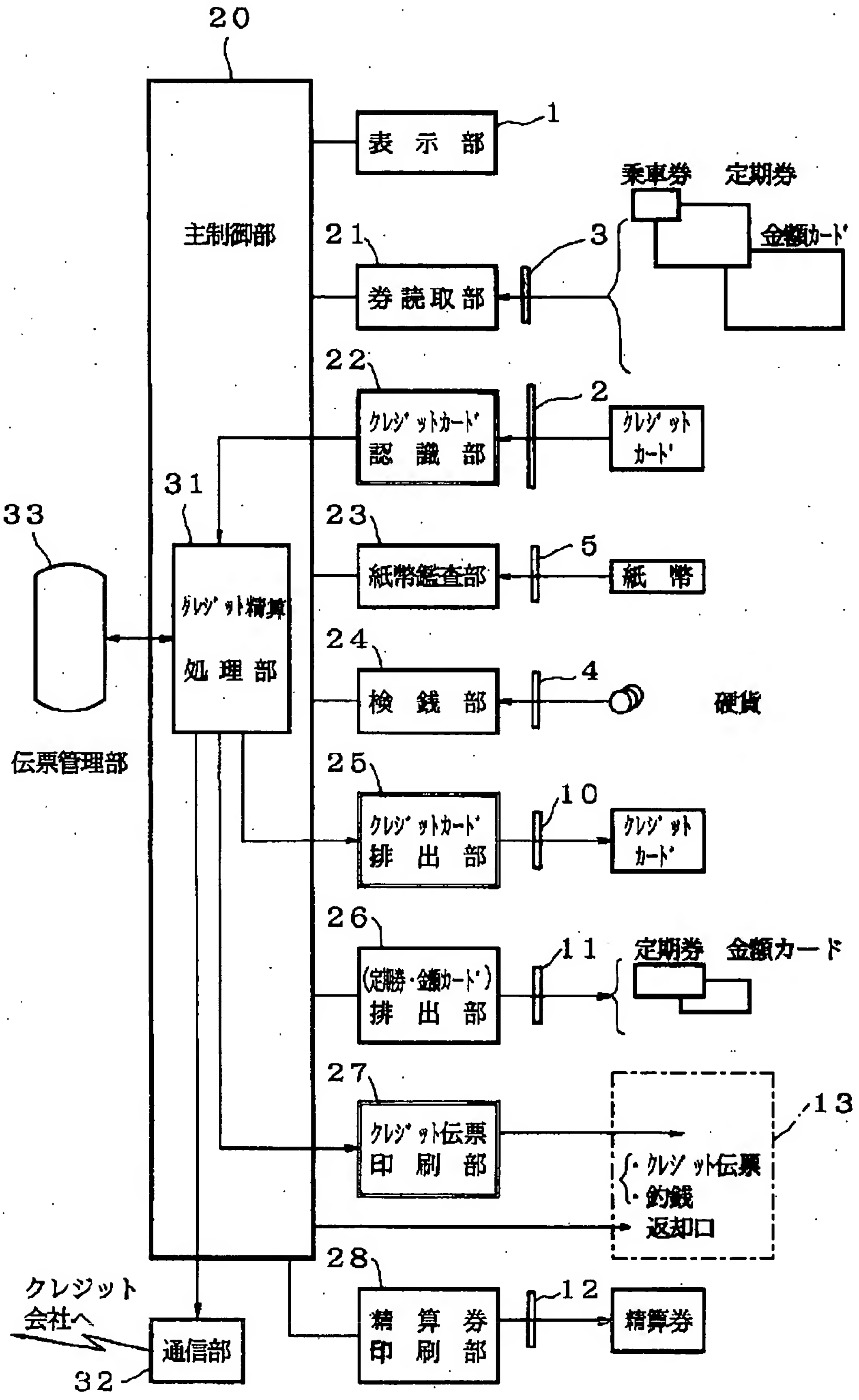
[Drawing 1]


1
硬貨
4
紙幣
5
クレジットカード
3
2
呼出し
6
取消し
7
12
13
11
10

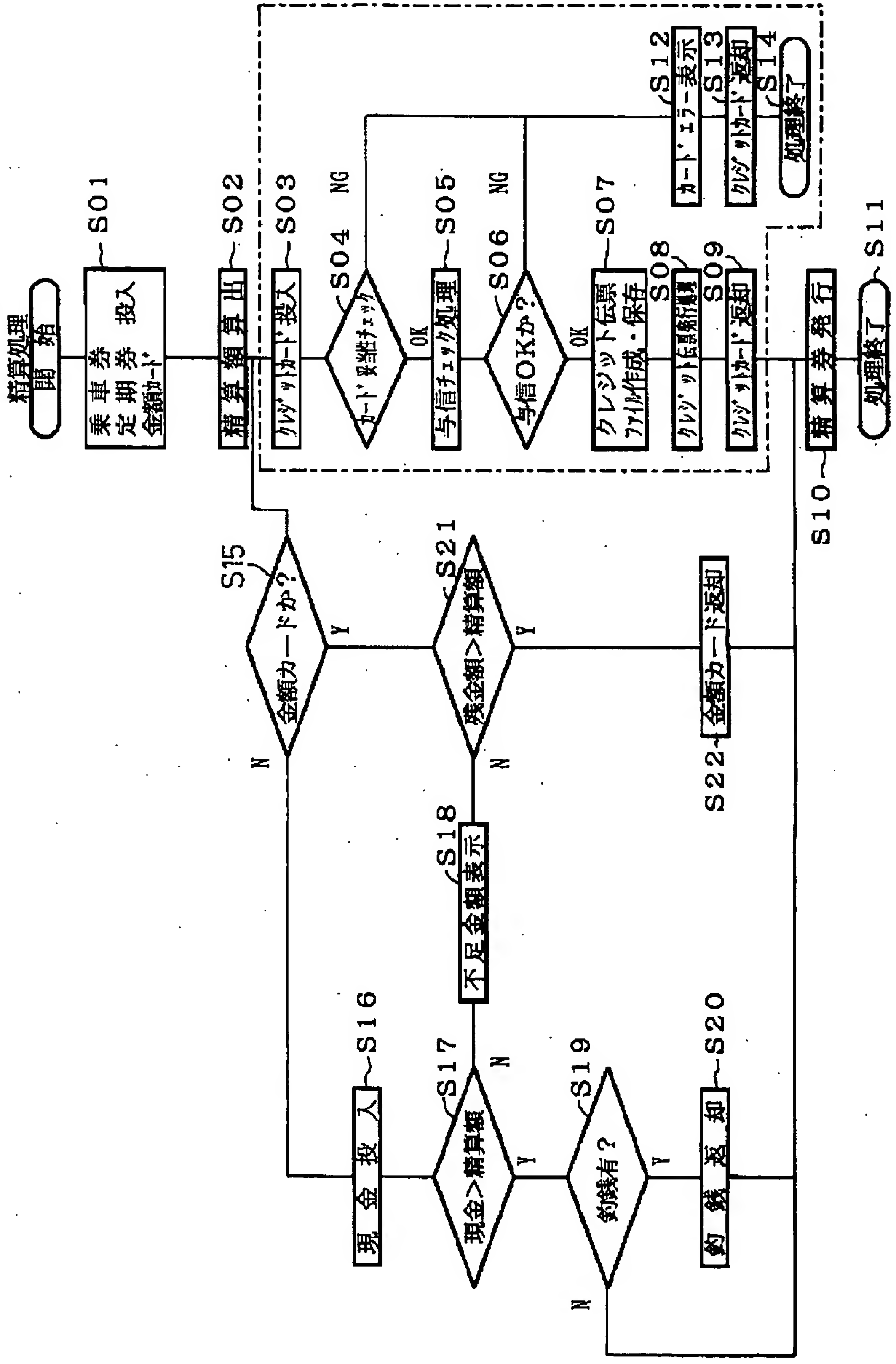
[Drawing 11]


51
硬貨
53
紙幣
52
54
56
55
57

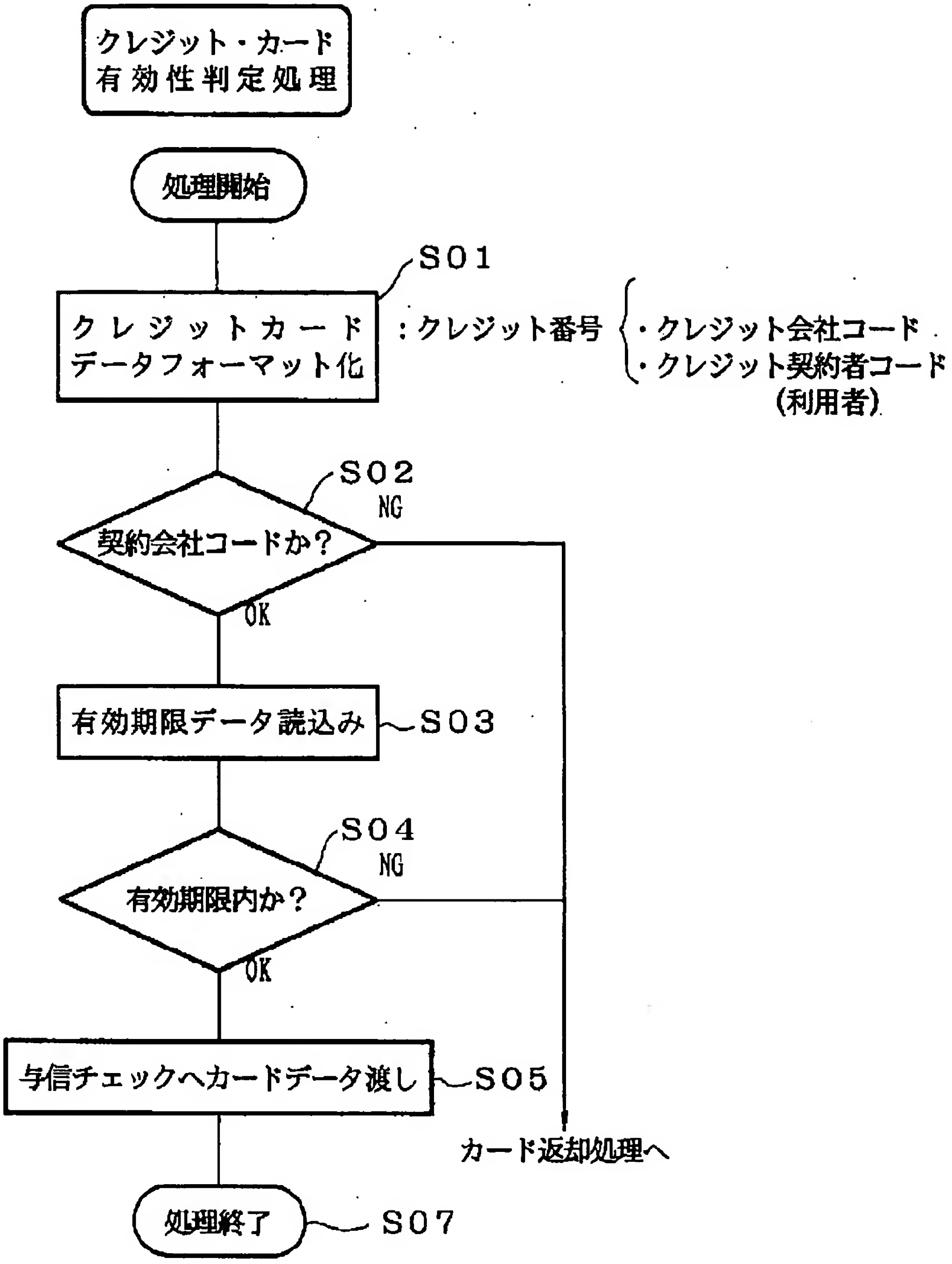
[Drawing 2]


20
主制御部
表示部
1
乗車券
定期券
金額ｶｰﾄﾞ
3
21
券読取部
22
ｸﾚｼﾞｯﾄｶｰﾄﾞ
認識部
2
ｸﾚｼﾞｯﾄ
ｶｰﾄﾞ
31
33
ｸﾚｼﾞｯﾄ精算
処理部
23
紙幣鑑査部
5
紙幣
24
検銭部
4
硬貨
伝票管理部
25
ｸﾚｼﾞｯﾄｶｰﾄﾞ
排出部
10
ｸﾚｼﾞｯﾄ
ｶｰﾄﾞ
26
(定期券・金額ｶｰﾄﾞ)
排出部
11
定期券
金額カード
27
ｸﾚｼﾞｯﾄ伝票
印刷部
13
・ｸﾚｼﾞｯﾄ伝票
・釣銭
返却口
28
精算券
印刷部
12
精算券
クレジット
会社へ
通信部
32

[Drawing 3]

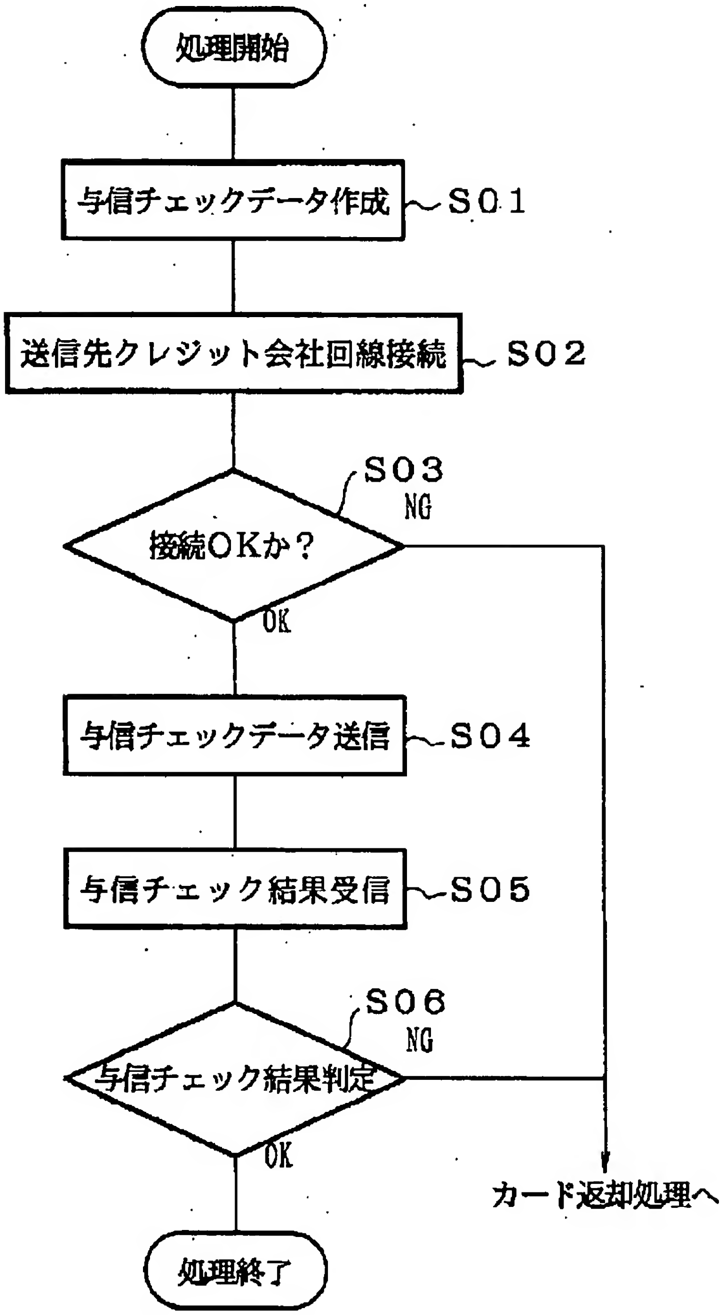

精算処理 開始
S01
乗車券 定期券 投入 金額カード
S02
精算額算出
S03
クレジットカード投入
S04
カード妥当性チェック
NG
OK
S05
与信チェック処理
S06
与信OKか？
NG
OK
S07
クレジット伝票 ファイル作成・保存
S08
クレジット伝票発行
S09
クレジットカード返却
S10
精算券発行
S11
処理終了
S12
カードエラー表示
S13
クレジットカード返却
S14
処理終了
S15
金額カードか？
Y
N
S21
残金額＞精算額
Y
N
S22
金額カード返却
S18
不足金額表示
S16
現金投入
S17
現金＞精算額
Y
N
S19
釣銭有？
Y
N
S20
釣銭返却

[Drawing 4]


クレジット・カード
有効性判定処理
処理開始
S01
クレジットカード
データフォーマット化
：クレジット番号
・クレジット会社コード
・クレジット契約者コード
(利用者)
S02
NG
契約会社コードか？
OK
有効期限データ読込み
S03
S04
NG
有効期限内か？
OK
与信チェックへカードデータ渡し
S05
カード返却処理へ
処理終了
S07

[Drawing 5]

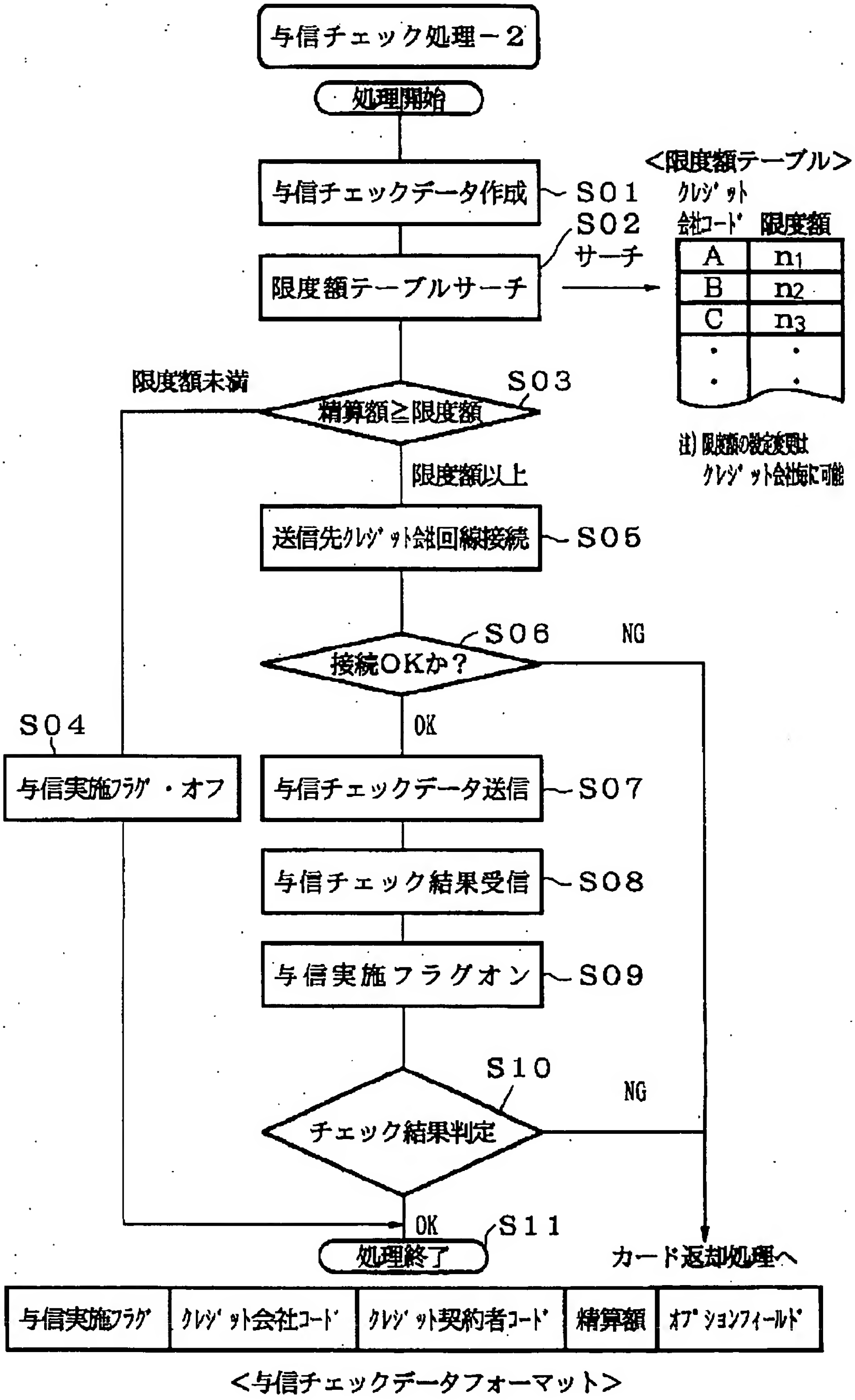
与信チェック処理


処理開始
与信チェックデータ作成
S01
送信先クレジット会社回線接続
S02
S03
接続OKか？
NG
OK
与信チェックデータ送信
S04
与信チェック結果受信
S05
S06
与信チェック結果判定
NG
OK
カード返却処理へ
処理終了

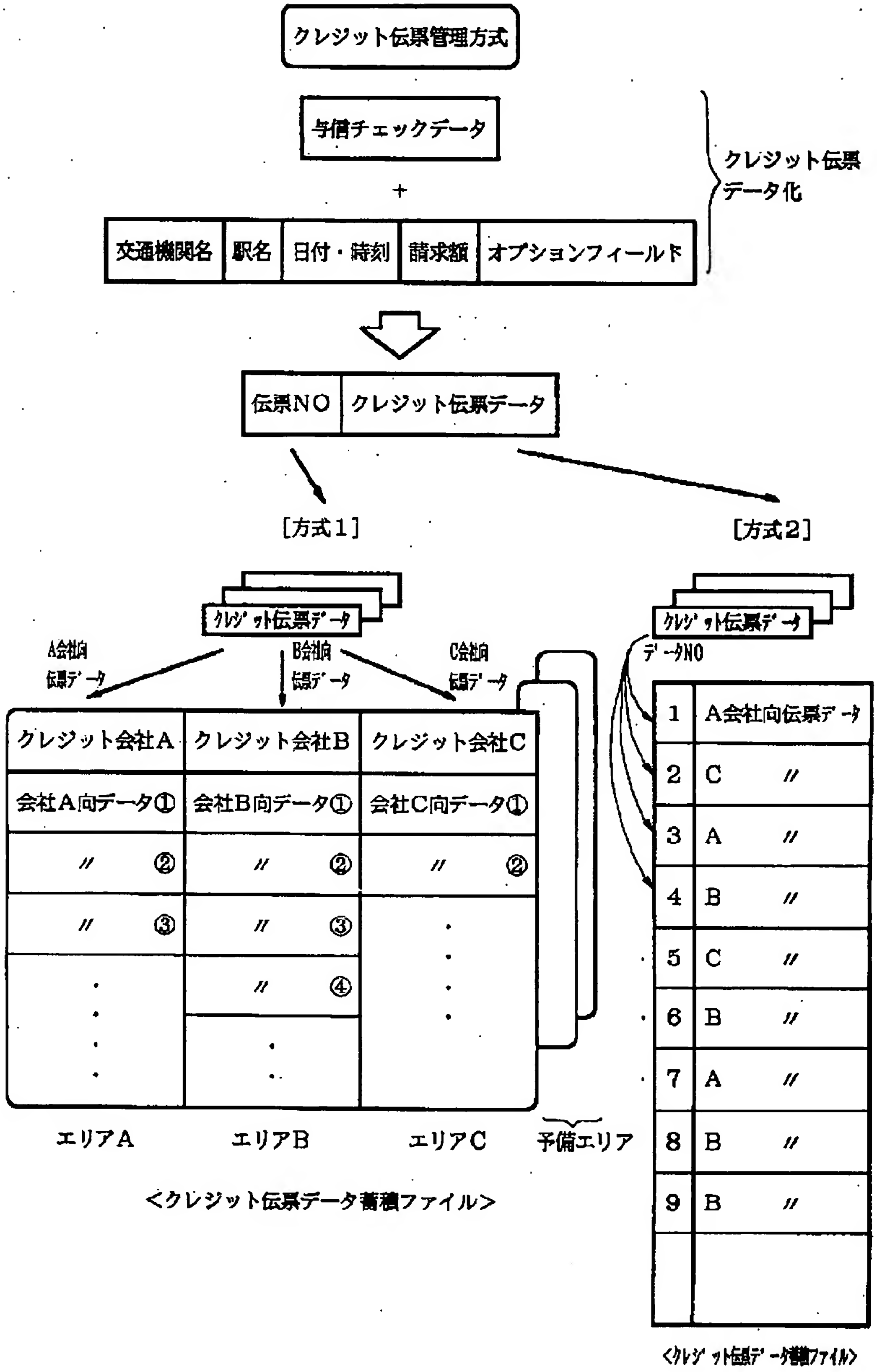
ｸﾚｼﾞｯﾄ会社ｺｰﾄﾞ	ｸﾚｼﾞｯﾄ契約者ｺｰﾄﾞ	精算額	ｵﾌﾟｼｮﾝﾌｨｰﾙﾄﾞ

＜与信チェックデータフォーマット＞

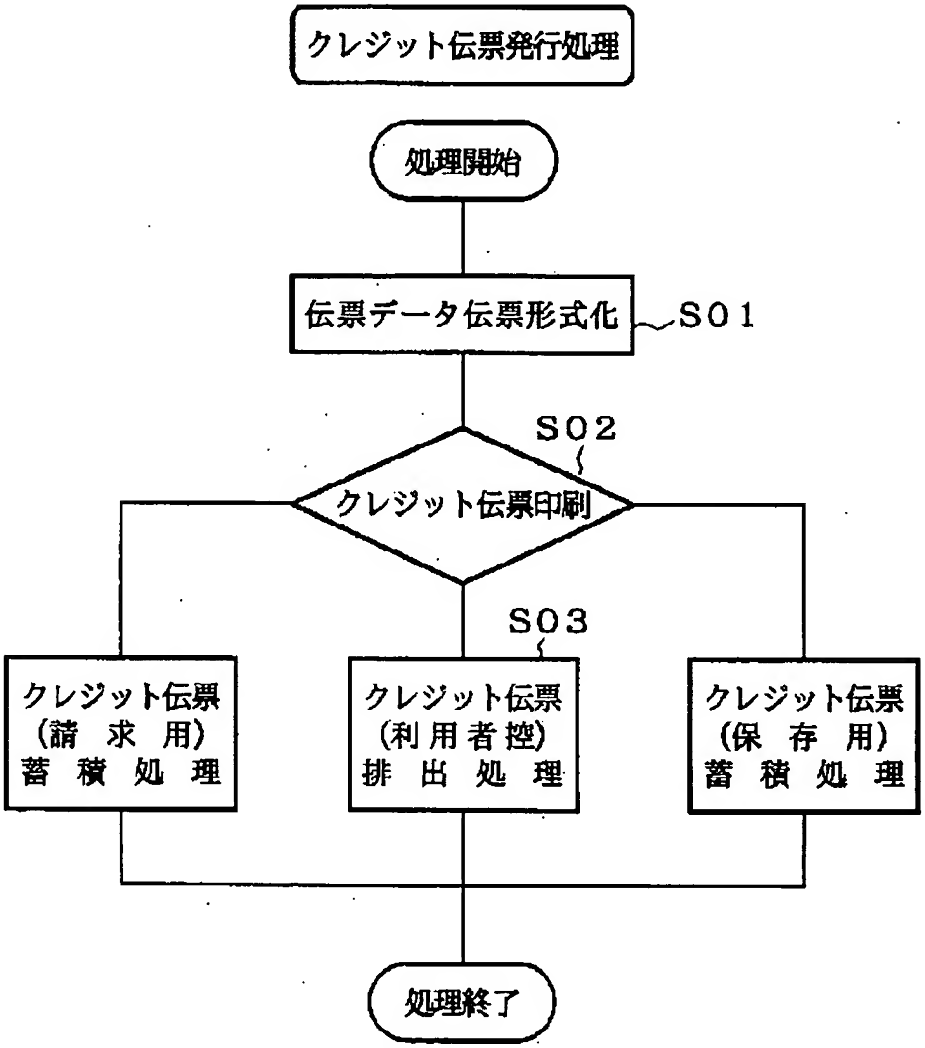
[Drawing 6]


与信チェック処理－2
処理開始
与信チェックデータ作成
S01
S02
サーチ
限度額テーブルサーチ
<限度額テーブル>
クレジット会社コード
限度額
A
n1
B
n2
C
n3
注) 限度額の設定変更は クレジット会社毎に可能
限度額未満
S03
精算額≧限度額
限度額以上
送信先クレジット会社回線接続
S05
S06
NG
接続OKか？
OK
S04
与信実施フラグ・オフ
与信チェックデータ送信
S07
与信チェック結果受信
S08
与信実施フラグオン
S09
S10
NG
チェック結果判定
OK
S11
処理終了
カード返却処理へ
与信実施フラグ
クレジット会社コード
クレジット契約者コード
精算額
オプションフィールド
<与信チェックデータフォーマット>

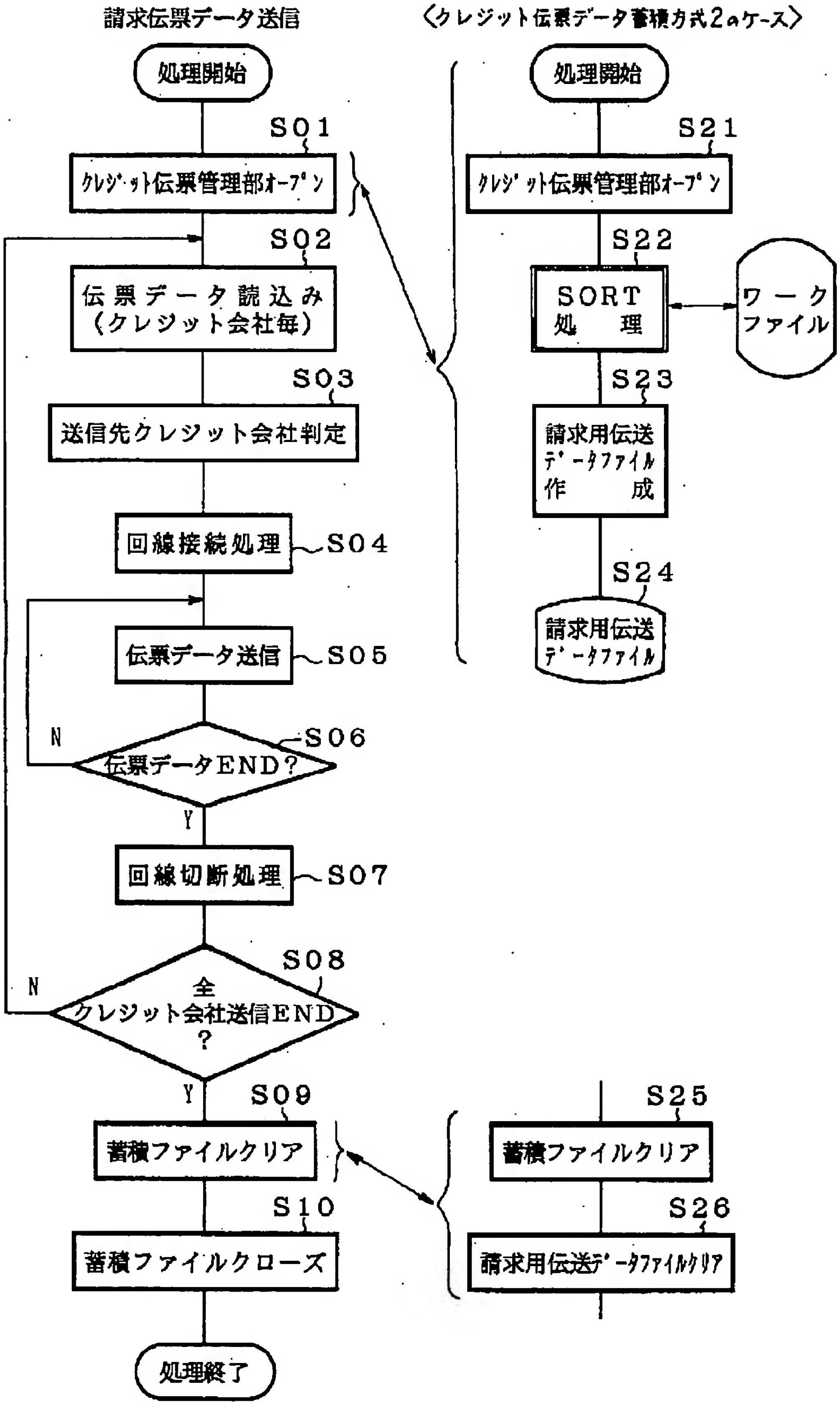
[Drawing 7]


クレジット伝票管理方式
与信チェックデータ
+
交通機関名
駅名
日付・時刻
請求額
オプションフィールド
クレジット伝票データ化
伝票NO
クレジット伝票データ
[方式1]
[方式2]
ｸﾚｼﾞｯﾄ伝票ﾃﾞｰﾀ
A会社向伝票ﾃﾞｰﾀ
B会社向伝票ﾃﾞｰﾀ
C会社向伝票ﾃﾞｰﾀ
クレジット会社A
クレジット会社B
クレジット会社C
会社A向データ①
会社B向データ①
会社C向データ①
〃 ②
〃 ③
〃 ④
エリアA
エリアB
エリアC
予備エリア
<クレジット伝票データ蓄積ファイル>
ﾃﾞｰﾀNO
1 A会社向伝票ﾃﾞｰﾀ
2 C 〃
3 A 〃
4 B 〃
5 C 〃
6 B 〃
7 A 〃
8 B 〃
9 B 〃
<ｸﾚｼﾞｯﾄ伝票ﾃﾞｰﾀ蓄積ﾌｧｲﾙ>

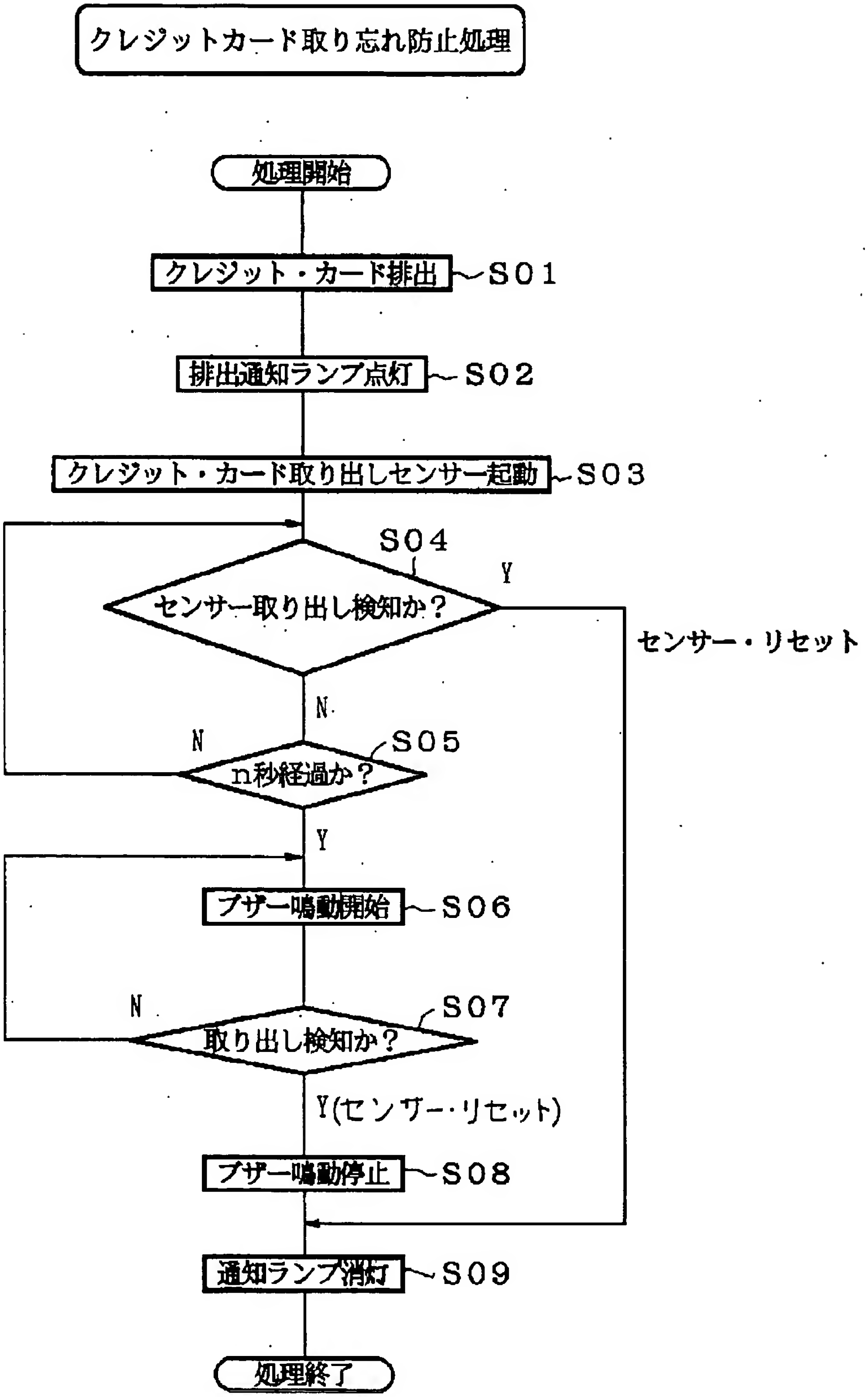
[Drawing 8]


クレジット伝票発行処理
処理開始
伝票データ伝票形式化
S01
S02
クレジット伝票印刷
S03
クレジット伝票（請求用）蓄積処理
クレジット伝票（利用者控）排出処理
クレジット伝票（保存用）蓄積処理
処理終了

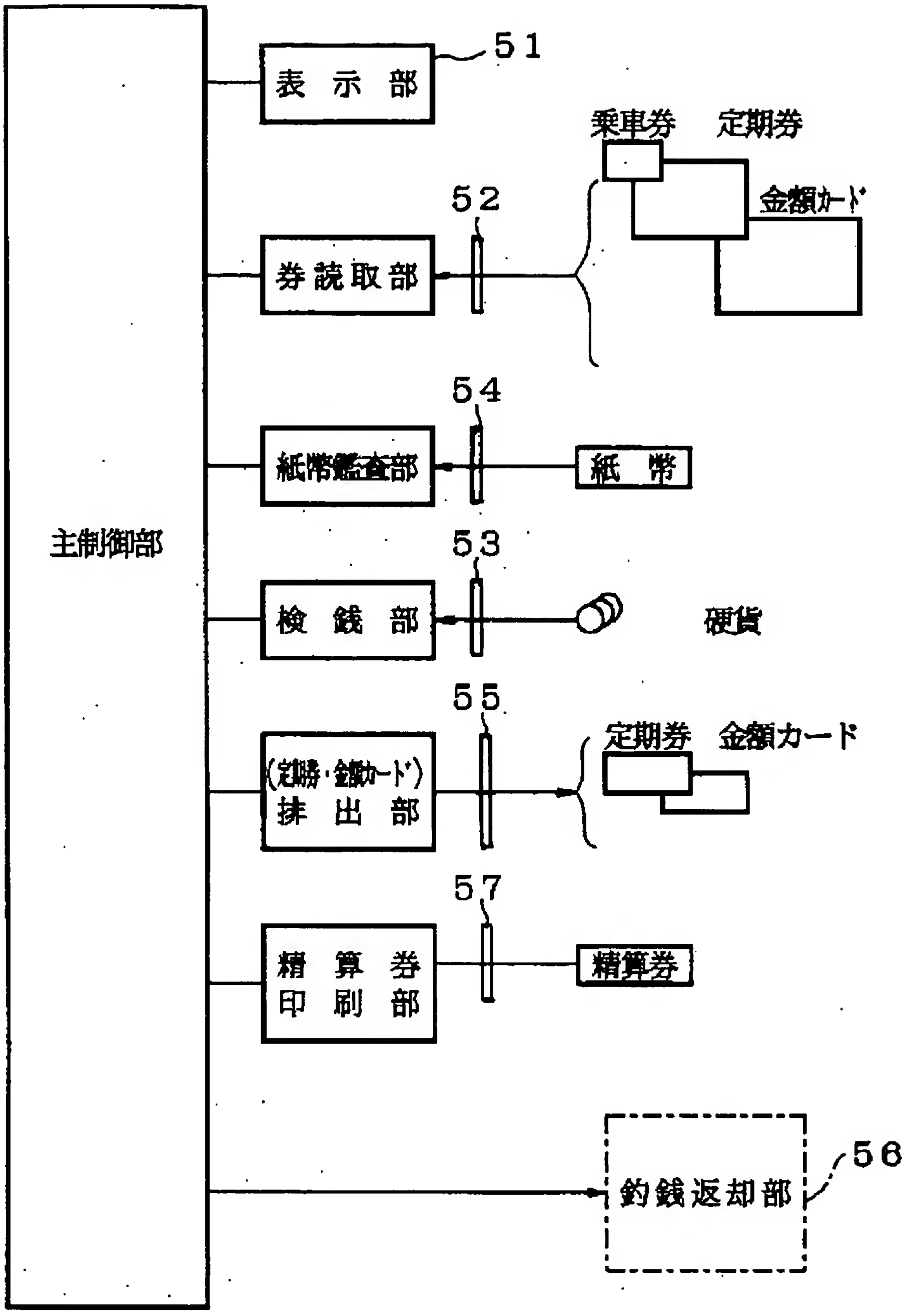
[Drawing 9]


請求伝票データ送信
〈クレジット伝票データ蓄積方式2のケース〉
処理開始
S01
ｸﾚｼﾞｯﾄ伝票管理部ｵｰﾌﾟﾝ
S02
伝票データ読込み
（クレジット会社毎）
S03
送信先クレジット会社判定
回線接続処理
S04
伝票データ送信
S05
N
S06
伝票データEND？
Y
回線切断処理
S07
S08
N
全
クレジット会社送信END
？
Y
S09
蓄積ファイルクリア
S10
蓄積ファイルクローズ
処理終了
処理開始
S21
ｸﾚｼﾞｯﾄ伝票管理部ｵｰﾌﾟﾝ
S22
SORT
処　理
ワーク
ファイル
S23
請求用伝送
ﾃﾞｰﾀﾌｧｲﾙ
作　成
S24
請求用伝送
ﾃﾞｰﾀﾌｧｲﾙ
S25
蓄積ファイルクリア
S26
請求用伝送ﾃﾞｰﾀﾌｧｲﾙｸﾘｱ

[Drawing 10]


クレジットカード取り忘れ防止処理
処理開始
クレジット・カード排出
S01
排出通知ランプ点灯
S02
クレジット・カード取り出しセンサー起動
S03
S04
センサー取り出し検知か？
Y
センサー・リセット
N
N
S05
n秒経過か？
Y
ブザー鳴動開始
S06
N
S07
取り出し検知か？
Y(センサー・リセット)
ブザー鳴動停止
S08
通知ランプ消灯
S09
処理終了

[Drawing 12]


主制御部
表示部
51
券読取部
52
乗車券
定期券
金額カード
紙幣鑑査部
54
紙幣
検銭部
53
硬貨
（定期券・金額カード）
排出部
55
定期券
金額カード
精算券
印刷部
57
精算券
釣銭返却部
56

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to an automatic-reset machine and the automatic-reset machine for being especially prepared in stations, such as a railroad, and paying balance dues, such as a ticket.
[0002]
[Description of the Prior Art] Conventionally, in order to attain rationalization of station service, the automatic-reset machine for the PAX to pay the fare for the extra distance is formed in stations, such as a railroad.
[0003] In drawing 11 , the front view of the conventional automatic-reset machine is shown, and the conventional automatic-reset machine whole block diagram is shown in drawing 12 at it.
[0004] In this automatic-reset machine, in case the fare for the extra distance is paid, a user inserts a ticket, a commuter pass, or a coupon ticket on hand etc. in the ticket insertion opening 52 (the following, ticket, etc.). The fare for the extra distance is computed [in / through a ticket read station / in the ticket inserted here / the main control section], and this fare for the extra distance is displayed on a display 51. And a user checks the amount of money displayed on the display 51, prepares a coin or a bill equivalent to this amount of money etc., and supplies to coin input port 53 or bill input port 54. Here, when the cash containing the fare for the extra distance is injected, a settlement-of-accounts ticket is published from the settlement-of-accounts ticket issue opening 57 and change is in it and coincidence, change is returned in the fishing return section 56, and when it is a commuter pass, a commuter pass is returned from the commuter pass return opening 55. On the other hand, a user can sell tickets by collecting these all and submitting a settlement-of-accounts ticket to a ticket gate.
[0005] However, when paying in an automatic-reset machine, for a user, after it checks the display of a display 51, it will prepare the fare for the extra distance, therefore it may require [the fare for the extra distance is unknown until it is displayed on a display 51, therefore] time amount, and may be sensed troublesome. Moreover, also in the case where two or more coins need to be thrown into coin input port 53, when there is much change, etc., time amount is taken by the making time or recovery time amount of a coin, and it senses troublesome. Furthermore, in the case where the automatic-reset machine was crowded and there is a long line, especially the actuation that the above time amount requires is sensed much more troublesome.
[0006] In order to ease such troublesomeness, the automatic-reset machine which can use a prepaid card is indicated by JP,3-202991,A.
[0007] This automatic-reset machine makes it possible to pay the displayed fare for the extra distance also with a prepaid card, loses the handling of a troublesome coin etc., and enables it to pay the fare for the extra distance more smoothly.
[0008]
[Problem(s) to be Solved by the Invention] However, a prepaid card may pay and purchase the predetermined amount of money beforehand, and a user may sense payment of this **** for a burden.

Moreover, when this prepaid card is lost, an intact amount of money is also loses.
[0009] Furthermore, generally, from being sold for every railroad, in the case of the user using two or more railroad firms, a prepaid card must purchase a prepaid card for every railroad, and will become great [a user's pocketbook burden].
[0010] Then, it is this invention's being made in view of the above-mentioned problem, and the place made into the purpose being able to pay the fare for the extra distance more smoothly, and offering an automatic-reset machine without a user's pocketbook burden.
[0011]
[Means for Solving the Problem] The automatic-reset machine concerning claim 1 can be equipped with the fare-for-the-extra-distance calculation section which computes the fare for the extra distance from the inserted ticket, a credit settlement-of-accounts means by which a credit card adjusts said fare for the extra distance, and the settlement-of-accounts ticket issue section which publishes the settlement-of-accounts ticket for proving settlement of accounts of the fare for the extra distance, and can perform settlement-of-accounts processing of the fare for the extra distance with a credit card.
[0012] According to the above-mentioned configuration, it troubles, and it is not necessary to pay the predetermined amount of money beforehand like a prepaid card, and it not only can lose the handling of good cash, but can lose a user's pocketbook burden.
[0013] Since the credit settlement-of-accounts means in claim 1 is equipped with the effectiveness judging means for judging the effectiveness of a credit card, the automatic-reset machine concerning claim 2 can prevent the settlement-of-accounts processing by invalid credit cards, such as expiration, with said effectiveness judging means.
[0014] The automatic-reset machine concerning claim 3 can perform settlement-of-accounts processing, after performing said credit check, since it has a credit check means to perform the credit check for collating pocketbook trust of a credit card with the credit settlement-of-accounts means in claim 1.
[0015] By constituting as above-mentioned, a user's payment capacity can be checked in advance.
[0016] The automatic-reset machine concerning claim 4 can be equipped with the credit check control section to which a credit check is made to perform only when exceeding the predetermined amount of use for said credit check means in claim 3, in below the predetermined amount of use, it cannot perform a credit check, but can perform settlement-of-accounts processing, and can raise settlement-of-accounts processing speed.
[0017] The automatic-reset machine concerning claim 5 is equipped with the cut-form Management Department which manages the amount due at the time of settlement of accounts as a cut-form file for said credit settlement-of-accounts means in claim 1, and the slip-print section which prints the cut-form file created at said cut-form Management Department, and a slip print is carried out by said slip-print section, and it publishes it while the settlement-of-accounts cut-form Management Department creates a settlement-of-accounts cut-form and manages said cut-form file at the time of settlement of accounts by the credit card.
[0018] By constituting as above-mentioned, the cut-form which could manage settlement-of-accounts processing by the cut-form Management Department, and was printed can be published to a user as user bracing.
[0019] Since a claim means to transmit the cut-form file accumulated in said cut-form Management Department in claim 5 to a credit firm, and to charge the settlement-of-accounts amount of money has, the automatic-reset machine concerning claim 6 can transmit the cut-form file accumulated in said cut-form Management Department for every predetermined period to a credit firm, and can be charged.
[0020] Since he leaves in said credit settlement-of-accounts means in claim 1 credit card picking and it is equipped with the prevention means, after settlement-of-accounts termination, the automatic-reset machine concerning claim 7 prevents a failure of a credit card to take, and can carry out the thing of it.
[0021]
[Embodiment of the Invention] The gestalt of suitable operation of this invention is explained using a drawing.
[0022] The front view of the automatic-reset machine of this invention, i.e., the block diagram of a

reception side, is shown in [gestalt of the 1st operation] drawing 1 . Moreover, the whole automatic-reset machine block diagram of this invention is shown in drawing 2 .

[0023] In drawing, the interior of the ticket input port 3 for throwing in a ticket etc. is equipped with the ticket read station 21, and the thrown-in ticket pays this ticket read station 21, it reads the section, and transmits this information to the main control section 20. The transmitted fare-for-the-extra-distance calculation section which pays and computes the fare for the extra distance based on section information is prepared in this main control section 20 to which it paid and section information was transmitted.

[0024] The display 1 prepared above said ticket input port 3 displays the fare for the extra distance and the various actuation situations mentioned later computed in the fare-for-the-extra-distance calculation section of said main control section 20 through said main control section 20.

[0025] In order to pay the fare for the extra distance displayed here with a credit card, it has the credit settlement-of-accounts means. This credit settlement-of-accounts means consists of credit card insertion opening 2 for inserting a credit card, the credit settlement-of-accounts processing section 31 which pays the fare for the extra distance with the inserted credit card, and credit card return opening 10 with which a user returns a credit card after settlement-of-accounts termination, and explains these configurations in full detail below.

[0026] The credit card insertion opening 2 is installed in said ticket input port 3 side by side, and it has the credit card recognition section 22 for reading the information carried in the interior at the credit card. This credit card recognition section 22 is equipped with the credit card effectiveness judging means for judging the effectiveness of the credit card mentioned later, and the effectiveness of a credit card is judged.

[0027] A credit cut-form file is created at the same time the credit settlement-of-accounts processing section 31 by which the information read in said credit card recognition section 22 was connected to ability ready for receiving performs credit settlement of accounts by the credit card of a credit card after having the credit check means for collating pocketbook trust of the credit card mentioned later and checking solvency in this credit check means.

[0028] The cut-form Management Department 33 connected to said credit settlement-of-accounts processing section 31 transmits the credit cut-form file which received serially the credit cut-form file created in said credit settlement-of-accounts processing section 31, carried out are recording preservation although explained in full detail behind, and was saved if needed to said credit settlement-of-accounts processing section 31.

[0029] The communications department 32 connected to said credit settlement-of-accounts processing section 31 is equipped with a communication line, and the credit check which connected and mentioned above said credit settlement-of-accounts processing section 31 and each credit firm is performed to it through this communication line, and said credit cut-form file is transmitted to a credit firm.

[0030] Furthermore, the credit cut-form created in said credit settlement-of-accounts processing section 31 is printed as certification of a user of credit use, and the credit slip-print section 27 connected to said credit settlement-of-accounts processing section 31 sends it out to the change return opening 13.

[0031] The credit card discharge section 25 connected to said credit settlement-of-accounts processing section 31 is formed in the interior of a rear-face the credit card return opening 10 which carries out discharge return of the credit card side, detects that settlement-of-accounts processing was completed in said credit settlement-of-accounts processing section 31, makes the credit card return opening 10 discharge a credit card, and is returned.

[0032] The settlement-of-accounts ticket issue opening 12 prepared above said change return opening 13 equips the interior with the settlement-of-accounts ticket printing section 28, it connects with said credit settlement-of-accounts processing section 31, it detects that a series of settlement-of-accounts processings ended in the credit settlement-of-accounts processing section 31, a settlement-of-accounts ticket is printed, and this settlement-of-accounts ticket printing section 28 publishes from said settlement-of-accounts ticket issue opening 12 in it.

[0033] Moreover, when the interior is equipped with the commuter pass discharge section 26 connected to said main control section 20 and a commuter pass is thrown into ticket input port 3, the commuter pass exhaust port 11 detects that the settlement-of-accounts processing in the main control section 20 ended the commuter pass discharge section 26, and discharges a commuter pass from said commuter pass exhaust port 11.

[0034] Moreover, the automatic-reset machine of this invention is constituted that the same cash or same prepaid card as usual can be paid apart from the above-mentioned credit settlement-of-accounts means.

[0035] That is, the credit card insertion opening 2 is adjoined, bill input port 5 is formed, and coin input port 4 is formed above this bill input port 5.

[0036] The bill audit section 23 for checking the class of thrown-in bill, the number of sheets of a bill, etc. is formed in the interior of said bill input port 5, and the injection amount of money is transmitted to the main control section 20 through this bill audit section 23. Moreover, ****** 24 which checks the thrown-in coin is formed in the interior of said coin input port 4, and the injection amount of money is transmitted to the main control section 20 through this ****** 24. When the cash injected here exceeds the fare for the extra distance, said main control section 20 computes change, and returns change from the change return opening 13.

[0037] Moreover, it is constituted that not only the ticket for which the ticket read station 21 inside said ticket input·port 3 was inserted but the use balance of a prepaid card can be read, and the use balance read here is transmitted to the main control section 20, and in the main control section 20, said use balance to the fare for the extra distance is deducted, and is discharged from said commuter pass exhaust port 11.

[0038] Below, it explains using the flow chart which shows settlement-of-accounts actuation of the automatic-reset machine of this invention to drawing 3 .

[0039] Settlement-of-accounts processing actuation is started by inserting a ticket on hand etc. in the ticket insertion opening 52 (S01). The information indicated by the ticket thrown in here is transmitted to the main control section 20 through the ticket read station 21, and calculation of the fare for the extra distance is performed in the main control section 20 (S02). The computed fare for the extra distance is displayed on a display 51, and a user determines whether to pay this fare for the extra distance by which approach.

[0040] As drawing is indicated to be **** with an alternate long and short dash line, in paying said fare for the extra distance with a credit card, a user inserts a credit card in credit card insertion opening (S03). It is judged by the effectiveness judging means which the credit card inserted here explains in full detail behind first that they are not invalid cards, such as the truth of a card, for example, injustice, and expiration, (S04), if it is judged that it is the credit card which cannot be used here, it will be displayed on a display 1 as "a card error" (S12), and a credit card will be returned from the credit card return opening 10 (S13).

[0041] Moreover, in said effectiveness judging means, when judged with it being usable, it shifts to the credit check explained in full detail behind (S05), and trust by the pocketbook operating condition of this credit card etc. is checked with a credit check (S06). In this credit check, when it is judged that use is impossible, it is displayed on a display 1 as "a card error" (S12), and a credit card is returned from the credit card return opening 10 (S13). Moreover, when it is judged that it is usable, a credit cut-form is created, and this credit cut-form file is sent and saved at the cut-form Management Department 33 (S07). And the credit cut-form file created here is printed in the credit slip-print section 27, and is published from the change return opening 13 as a cut-form for user bracings (S08). After the settlement-of-accounts processing by the credit card is completed, a credit card is returned from the credit card return opening 10 (S09), a settlement-of-accounts ticket is published by it and coincidence from the settlement-of-accounts ticket issue opening 12 (S10), in the case of a commuter pass, a commuter pass is further discharged from the commuter pass exhaust port 11, and all actuation is completed (S11).

[0042] In addition, although the credit cut-form file saved at the cut-form Management Department 33 is explained in full detail behind, it is summarized for every credit firm and transmitted to a credit firm by the communications department 32, and the settlement-of-accounts amount of the fare for the extra distance is charged.

[0043] Moreover, the settlement-of-accounts processing actuation by the same cash or same prepaid card as the former in this automatic-reset machine etc. is shown in drawing 3 as reference.

[0044] When cash adjusts (S15), the fare for the extra distance displayed on the display 1 is checked, and cash is injected into bill input port 5 or coin input port 4 (S16). Here, the amount of an injection of cash is checked in the bill audit section 23 or ****** 24, the injected cash is inputted into the main control section 20, and in this main control section 20, although the amount of an injection is a frame more than the fare for the extra distance, it is computed how it is (S17). Here, when the amount of an injection does not fulfill the fare for the extra distance, a balance due is displayed on a display 1 (S18). On the other hand, when the amount of an injection is more than the fare for the extra distance subsequently, when the main control section 20 judges existence of change (S19) and there is no change When a settlement-of-accounts ticket is published (S10) and there is change, after returning change to the change return opening 13 (S20), issue of a settlement-of-accounts ticket is performed (S10), and in being a commuter pass, a commuter pass is returned and it completes settlement-of-accounts processing actuation (S11).

[0045] Moreover, in the case of a pre PEIDO card, a prepaid card is inserted in ticket input port 3, read of the use balance of a prepaid card is performed in the ticket read station 21 (S15), the use balance is checked, and it is inputted into the main control section 20. In the main control section 20, the use balance is more than the fare for the extra distance, or a check is performed (S21), and when the use balance does not fulfill the fare for the extra distance, the insufficient amount of money is displayed on a display 51 here (S18). Moreover, when the use balance is more than the fare for the extra distance, after deducting the fare for the extra distance with a prepaid card, a prepaid card is returned from the commuter pass return opening 55 (S22), a settlement-of-accounts ticket is published (S10), and settlement-of-accounts processing is completed (S11).

[0046] In the above, when the use balance of cash or a prepaid card does not fulfill the fare for the extra distance, like the above, the use balance of (S17 or S21), the cash that threw in cash or another prepaid card further, and was injected here, or a prepaid card is inputted into the main control section 20, and is added, and settlement-of-accounts processing is performed by this addition amount of money. For example, when cash is injected behind, the process after S19 is repeated, and when a prepaid card is thrown in behind, the process after S22 is repeated.

[0047] Below, each process of operation is explained in full detail.

[0048] Process drawing of the effectiveness judging means of the credit card in the credit card recognition section 22 mentioned above of operation is shown in [credit card effectiveness judging means] drawing 4 .

[0049] The credit card inserted in the credit card recognition section 22 The information indicated by the credit card, for example, a credit firm code, Read a credit contractor code etc. (S01), judge whether you are a contract firm from the credit firm code (SO2), and in not being a contract firm Card return processing, i.e., the "card error" display in drawing 3 mentioned above, indicates that it is a credit card outside a contract firm, and it returns a credit card to the credit card return opening 10.

[0050] When the inserted credit card belongs to a contract firm, subsequently to a card read of expiration date data is performed (S03), and it is checked whether it is a thing within a shelf-life (S04). Here, when the shelf-life has run out, the same card return processing as the above is performed. On the other hand, in being within a shelf-life, the information read here is told to the following credit check means (S05), and it completes effectiveness judging processing.

[0051] The process of a credit check means of operation is shown in [credit check means] drawing 5 .

[0052] With a credit check means, the information told from the effectiveness judging means of the credit card mentioned above is created as credit check data (S01). This credit check data consists of for example, a credit firm code, a credit contractor code, the amount due, etc.

[0053] Subsequently, if the line number is searched, line connection processing with a transmission place credit firm is performed through said communications department 32 based on the credit firm code indicated by this data (S02) and a circuit connects (S03), the created credit check data will be transmitted to a credit firm (S04), and a credit check will be performed by the predetermined approach in a credit firm.

[0054] After the credit check in this credit firm is completed, when the result which received that result through said communications department 32 (S05), and was received here is "usable", it is moved to (S06) and the next cut-form Management Department.

[0055] In addition, in this credit check means, when the case (S03) where connection of a circuit is not completed, and the result of a credit check are judged as use being impossible (S06), card return processing mentioned above is performed.

[0056] A [credit cut-form management tool] cut-form management tool makes the cut-form Management Department 33 do record-keeping of the credit cut-form file which recorded a series of settlement-of-accounts processings.

[0057] Further, a means-of-transportation name, a name of the station, Date/Time, the amount billed, etc. are added, and the credit cut-form data saved at the cut-form Management Department 33 are constituted by the credit check data received from the credit firm, as shown in drawing 7 .

[0058] A slip number is attached and the credit cut-form data created here are stored in the cut-form Management Department 33 by the desired storing method. Here, two methods shown in drawing are prepared as a storing method, it is alike, respectively, and said credit cut-form file is stored. Namely, for every credit firm, "a method 1" prepares area in a file and stores it in the area of the credit firm which corresponds for every credit cut-form data. This can be behind used as a cut-form data file for a claim to a credit firm. On the other hand, "a method 2" can only store credit cut-form data in seeking SHARU, and they can mainly be used for it as a record data file for their company.

[0059] After storing of the credit cut-form to the cut-form Management Department 33 is completed as above-mentioned, issue of the credit cut-form which is the final process of the settlement-of-accounts processing by the credit card is performed.

[0060] Processing process drawing of a credit billing process is shown in credit billing means drawing 8 .

[0061] First, credit cut-form data are changed into a slip-print format (S01), and the cut-form data prepared by the printing format here are printed in the credit slip-print section 27 (S02). As this print sheet, as shown in drawing, the copy cut-form of a three-sheet lot is used, for example, facsimile posting is carried out, sending this cut-form into the credit slip-print section 27 a lot every, and pressurizing it, and the embossing part currently recorded on the card with cut-form data is also printed. Here, among the copy cut-forms which consist of three printed sheets, the one section (bracing for users) is published from the change return opening 13, and credit billing processing ends it.

[0062] In addition, the two remaining sections of the printed copy cut-form are saved in the interior of an automatic-reset opportunity temporarily as the cut-form for a claim to a credit firm, and a bracing cut-form for certification of their company, respectively. And the cut-form for a claim saved here may be sent to a credit firm by separate post, after claim processing to the credit firm through the communications department 32 which mentions later for every fixed period is performed.

[0063] The settlement-of-accounts amount of money by which settlement-of-accounts processing was carried out with the claim means credit card of the credit settlement-of-accounts amount of money is transmitted to each credit firm through the communications department 32 as claim cut-form data for every fixed period.

[0064] Transmitting processing process drawing of this claim cut-form data is shown in drawing 9 .

[0065] First, the credit cut-form Management Department 33 is opened (S01), and the cut-form data for a claim of the credit firm of 1 are called to the main control section 20, and it is read from the file saved as the storing method 1 mentioned above, i.e., cut-form data for a claim, (S02). Subsequently, in order to transmit this cut-form data for a claim, the circuit of said credit firm is judged (S03), the line number is connected through the communications department 32 (S04), and claim cut-form data are transmitted to said credit firm (S05). After transmission of this cut-form data for a claim is completed (S06), the circuit of the communications department 32 is cut (S07), and claim processing of the credit firm of 1 is completed.

[0066] Termination of claim processing of the credit firm of 1 gives the credit cut-form Management Department 33 retrieval of the credit cut-form data which are not charged [by which preservation management is carried out] (S06). When the cut-form data for a claim of a non-asked credit firm remain here, a series of claim processings from reading (S02) of the cut-form data for a claim to line disconnection (S07) are repeated like the above until the claim to all credit firms is completed.

[0067] Termination of the claim processing to all credit firms deletes the data saved at the cut-form Management Department 33, i.e., the cut-form data file for a claim, and the cut-form data for record (S09). (S08) After deletion of this asked data is completed, the cut-form Management Department 33 is closed (S10), and all claim down stream processing ends it.

[0068] moreover, in creating the data for a claim in the above-mentioned actuation from the cut-form data saved by said storing method 1 at the cut-form Management Department 33 Open the cut-form Management Department 33 (S21), and sorting application which is located in a line and changes the cut-form file saved sequentially for every credit firm is performed (S22). After creating the cut-form data file for a claim (S23), actuation after reading (S02) of cut-form data is performed, and it sets, after transmitting ending to a credit firm. Deletion (S26) of said cut-form data file for a claim is performed with deletion (S25) of the file saved by the storing method 1.

[0069] According to the automatic-reset machine of this invention constituted as above, it enables the fare for the extra distance of a ticket to pay with a credit card.

[0070] Settlement-of-accounts processing can be made to perform quickly more from the ability of the activity of collecting injections and change of a coin etc. for the displayed fare for the extra distance to be checked, and for the time and effort for which cash is prepared to be saved, and to be excluded, when payment by the credit card becomes possible. Moreover, by using a credit card, it becomes unnecessary to purchase a prepaid card for every railroad, and a user's burden can be lessened. Moreover, the credit card is convenient, without the situation which must add and use cash occurring, when the use balance decreases like a prepaid card.

[0071] In addition, although this invention was limited to the automatic-reset machine and explained, it can be made to apply also to a ticket vending machine with a natural thing. When this invention is applied to a ticket vending machine, it becomes possible to pay a large sum long distance ticket with a credit card, and it is advantageous for a user.

[0072] The credit check control means which the automatic-reset machine in the gestalt of [gestalt of the 2nd operation] the 2nd operation restricts the credit check means in the gestalt of the 1st operation to the settlement-of-accounts amount of money more than the fixed amount, and operates is established.

[0073] Processing process drawing of the credit check control means in the gestalt of this operation to drawing 6 is shown.

[0074] First, based on the credit firm code in the data created in the credit check data origination process (S01), retrieval of the credit check abbreviation limit of this credit firm is performed (S02). This retrieval is performed based on the database carried in the main control section 20, and the limit which can omit the credit check in a credit firm and each credit firm is written in this database.

[0075] It is inputted into the main control section 20, and the comparison with the settlement-of-accounts amount of money and this limit is performed, when the settlement-of-accounts amount of money is under a limit, (S03) and credit check processing become off (S04), credit check processing ends the limit searched here, without performing a credit check (S11), and settlement-of-accounts processing is performed.

[0076] On the other hand, if line connection processing with a credit firm is performed (S05) and a circuit is connected like the gestalt of (S03) and the 1st operation when the settlement-of-accounts amount of money is more than a limit (S06), credit check data will be transmitted to a credit firm (S07), and a credit check will be performed in a credit firm.

[0077] After credit check ending in a credit firm, the result of a credit check is received (S08), and a credit check implementation flag is set (S09). Here, when the received result is usable, a credit check is ended (S11) and it moves to the next settlement-of-accounts actuation.

[0078] According to the gestalt of this operation the above passage, since a credit check is omitted and settlement-of-accounts processing is performed to the settlement-of-accounts tariff with which a fixed limit is not filled, shortening of the processing time can be attained and processing effectiveness

improves.
[0079] Near the credit card return opening, he leaves in the automatic-reset machine in the gestalt of [gestalt of the 3rd operation] the 3rd operation credit card picking further, and the arrester is formed in it.
[0080] He leaves in drawing 10 credit card picking, and processing process drawing of an arrester is shown in it.
[0081] After the settlement-of-accounts processing by a series of credit cards is completed, a credit card is discharged by the credit card return opening 10 by the credit card discharge section 25 (S01). Here, if a credit card is discharged from the credit card return opening 10, while the notice lamp of return for telling return of this credit card will light up (S02), a credit card ejection detection sensor starts (S03).
[0082] Here, if a credit card is taken out and said credit card ejection detection sensor detects ejection (S04), a sensor will be reset and the notice lamp of return will switch it off (S09).
[0083] On the other hand, even if said credit card ejection detection sensor starts and predetermined time amount passes, when ejection of a credit card is not performed, the warning buzzer for warning of a failure of (S05) and a credit card taking starts singing (S06), and singing of this warning buzzer is performed until a credit card is taken out. And if a user takes out a credit card, said credit card ejection detection sensor will detect this ejection (S07), the singing of said warning buzzer will stop (S08), and, subsequently the notice lamp of return will put out the light (S09).
[0084] According to the automatic-reset machine constituted as above, a failure of an important credit card to take can be prevented.
[0085] In addition, in the above, a failure of a credit card to take can be more effectively prevented by urging the ejection of a credit card with a display 51 and voice with lighting of the discharge pilot light which tells return of the credit card from the credit card return opening 10.
[0086]
[Effect of the Invention] According to the automatic-reset machine of this invention, it enables the fare for the extra distance of a ticket to pay with a credit card.
[0087] The handling of the cash which time amount applies troublesomely can be lost, and settlement-of-accounts processing can be made to perform quickly more, when settlement of accounts by the credit card is attained. Moreover, it is not necessary to pay the predetermined amount of money beforehand like a prepaid card, and a user's pocketbook burden can be lost.
[0088] Moreover, a credit check means to check pocketbook trust of a user can be made to perform, in order to make quicker settlement-of-accounts processing by the credit card only when the predetermined amount of use is exceeded. Therefore, the credit check which time amount requires is omitted and settlement-of-accounts processing effectiveness improves.
[0089] Furthermore, he can forget credit card picking, it can have a prevention means, and a failure of a credit card to take can also be prevented after settlement-of-accounts termination.

[Translation done.]

* NOTICES *

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1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] The automatic-reset machine which is equipped with the fare-for-the-extra-distance calculation section which computes the fare for the extra distance from the ticket which is the automatic-reset machine which pays the fare for the extra distance, such as a ticket, and was inserted, a credit settlement-of-accounts means by which a credit card adjusts said fare for the extra distance, and the settlement-of-accounts ticket issue section which publishes the settlement-of-accounts ticket for proving settlement of accounts of the fare for the extra distance, and enables settlement-of-accounts processing of the fare for the extra distance with a credit card.
[Claim 2] The automatic-reset machine according to claim 1 which establishes an effectiveness judging means to judge the effectiveness of a credit card for said credit settlement-of-accounts means, and prevents the settlement-of-accounts processing by invalid credit cards, such as expiration, with said effectiveness judging means.
[Claim 3] The automatic-reset machine according to claim 1 which can perform settlement-of-accounts processing after it established a credit check means to perform the credit check which collates pocketbook trust of a credit card with said credit settlement-of-accounts means and this credit check means performs a credit check.
[Claim 4] The automatic-reset machine according to claim 3 which establishes the credit check control means to which a credit check is made to carry out only when exceeding the predetermined amount of use for said credit check means, does not perform a credit check in below the predetermined amount of use, but performs settlement-of-accounts processing, and raises settlement-of-accounts processing speed.

[Claim 5] The automatic-reset machine according to claim 1 which carries out a slip print by said slip-print section and which is outputted while preparing the cut-form Management Department which manages the amount due at the time of settlement of accounts as a cut-form file for said credit settlement-of-accounts means, and the slip-print section which prints the cut-form file created at said cut-form Management Department, and the settlement-of-accounts cut-form Management Department's creating a settlement-of-accounts cut-form at the time of settlement of accounts by the credit card and managing said cut-form file.
[Claim 6] The automatic-reset machine according to claim 5 which establishes a claim means to transmit the cut-form file accumulated in said cut-form Management Department to a credit firm, and to charge the settlement-of-accounts amount of money, transmits the cut-form file accumulated in said cut-form Management Department for every predetermined period to a credit firm, and charges the settlement-of-accounts amount of money.
[Claim 7] The automatic-reset machine according to claim 1 which leaves in said credit settlement-of-accounts means credit card picking, establishes a prevention means, and prevents a failure of a credit card to take after settlement-of-accounts termination.

[Translation done.]